IN THE SPECIFICATION

Please replace the paragraph on page 23, beginning at line 11, with the following rewritten paragraph:

FIG. ~~13~~ 12 presents a flow chart describing a method of monitoring a processing system for processing a substrate during the course of semiconductor manufacturing. The method 500 begins at 510 with acquiring data from the processing system for a plurality of observations. The processing system can, for example, be an etch system, or it may be another processing system as described in FIG. 1. The data from the processing system can be acquired using a plurality of sensors coupled to the processing system and a controller. The data can, for example, comprise any measurable data parameter, and any statistic thereof (e.g., mean, standard deviation, skewness, kurtosis, etc.). Additional data can, for example, include optical emission spectra, RF harmonics of voltage and/or current measurements or radiated RF emission, etc. Each observation can pertain to a substrate run, instant in time, time average, etc.

Please replace the paragraph on page 24, beginning at line 16, with the following rewritten paragraph:

FIG. ~~12~~ 13 illustrates a computer system 1201 for implementing various embodiments of the present invention. The computer system 1201 may be used as the controller 55 to perform any or all of the functions of the controller described above. The computer system 1201 includes a bus 1202 or other communication mechanism for communicating information, and a processor 1203 coupled with the bus 1202 for processing the information. The computer system 1201 also includes a main memory 1204, such as a random access memory (RAM) or other dynamic storage device (e.g., dynamic RAM (DRAM), static RAM (SRAM), and synchronous DRAM (SDRAM)), coupled to the bus 1202 for storing information and

instructions to be executed by processor 1203. In addition, the main memory 1204 may be

used for storing temporary variables or other intermediate information during the execution of

instructions by the processor 1203. The computer system 1201 further includes a read only

memory (ROM) 1205 or other static storage device (e.g., programmable ROM (PROM),

erasable PROM (EPROM), and electrically erasable PROM (EEPROM)) coupled to the bus

1202 for storing static information and instructions for the processor 1203.